1.4 Distinct or Coincident Lines

Remember the linear systems that we solved by graphing in our first lesson?

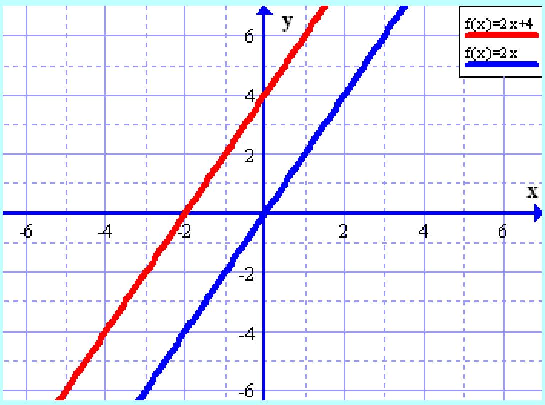
a) $y = 2x + 4$
$y = 2x$

b) $y = 2x + 4$
$y = - x + 4$

c) $y = x - 3$
$4x - 4y = 12$

Feb 14 - 3:29 PM

a) $y = 2x + 4$
$y = 2x$



These lines are parallel and distinct, there was no solution to the system.

What would happen when you solve this system algebraically?

Feb 11-7:36 AM

Solve the following linear system using an algebraic method.

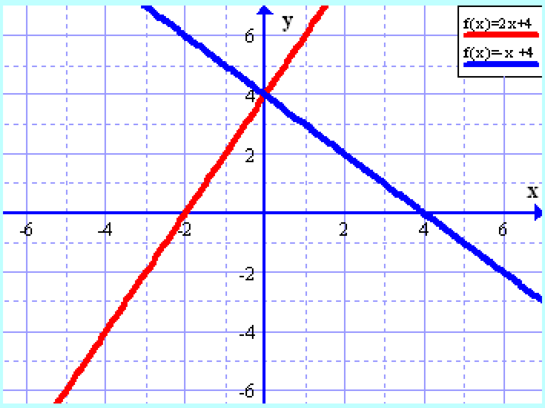
$y = 2x + 4$

$y = 2x$

Feb 11-7:25 AM

b) $y = 2x + 4$

$y = -x + 4$



These lines are not parallel, there was **one** solution to the system.

What would happen when you solve this system algebraically?

Feb 11-7:39 AM

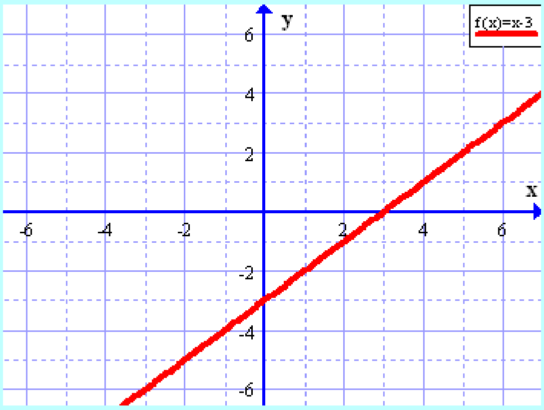
Solve the following linear system using an algebraic method.

$$y = 2x + 4$$
$$y = -x + 4$$

Feb 11-7:44 AM

c) $y = x - 3$

$4x - 4y = 12$



These lines are the same (<u>coincident</u>), there were **infinitely many** solutions to the system.

What would happen when you solve this system algebraically?

Feb 11-7:41 AM

Solve the following linear system using an algebraic method.

$$y = x - 3$$
$$4x - 4y = 12$$

Feb 11-7:46 AM

When solving a linear system algebraically:

Exactly One Solution
- you can find the value of one of the variables and then solve for the other.

No Solution
- you end up with an untrue statement.

e.g. $0x = 2$ is never true
- these lines are distinct.

Infinitely Many Solutions
- you end up with a statement which is true for any value of x.
- $0x = 0$ is always true
- these lines are coincident.

Assigned Work: p. 59 # 1, 2a, 3abcfh, 4, 6*

Feb 14 - 3:37 PM